

**FACULTY OF SCIENCE****DEPARTMENT OF ZOOLOGY****MODULE          PHS2A01****CAMPUS          APK****SSA EXAM        JULY 2014****DATE:****SESSION****ASSESSOR(S)****PROF GM WAGENAAR****INTERNAL MODERATOR/S****DR P TESKE****EXTERNAL MODERATOR****DURATION      2 HOURS****MARKS    100**

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**NUMBER OF PAGES: 3 PAGES****INSTRUCTIONS:****Answer all the questions****Use different exam scripts for sections A and B**

### **QUESTION 1**

- 1.1 With the aid of a suitable example, describe homeostasis and explain what can happen when homeostasis break down. (10)
- 1.2 Explain the significance of pH in physiological systems. (5)
- 1.3 Explain how the chemical properties of water make life possible. (5)

[20]

### **QUESTION 2**

- 2.1 List the functions of the plasma membrane and describe the structural features that enable it to perform those functions. (9)
- 2.2 Explain why certain cells in the ovaries and testes contain large amounts of smooth endoplasmic reticulum. (6)
- 2.3 Describe the vesicular transport mechanism in cells. (5)

[20]

### **QUESTION 3**

- 3.1 Explain how the changes in skin colour during an illness could give an indication of the disease responsible. (8)
- 3.2 Describe the interaction between sunlight and Vitamin D<sub>3</sub>. (7)

[15]

**Subtotal: 55**

### **SECTION B – ANSWER THIS SECTION IN ANOTHER EXAM SCRIPT**

### **QUESTION 4**

Discuss the effects of exercise, hormones and nutrition on bone development. [15]

**Question 5**

- 5.1 Describe the organization of the muscle at the tissue level. (5)
- 5.2 Describe the connective tissue layers associated with skeletal muscle tissue. (6)
- 5.3 Explain how severing the tendon attached to a muscle would affect the muscle's ability to move a body part. (4)
- 5.4 Discuss the importance of a high  $\text{Ca}^{2+}$  concentration in a resting sarcomere. (5)
- 5.5 Explain the concept of the "sliding filament theory" in detail. (10)

[30]

**Subtotal: 45**

**TOTAL MARKS (100)**

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